

PHILAUTUS SHILLONGENSIS, A NEW FROG (RANIDAE) FROM MEGHALAYA, INDIA

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Received October 8, 1971

(Communicated by Dr. B. S. Chauhan, F.A.Sc.)

ABSTRACT

A new species of frog, *Philautus shillongensis* is described from Meghalaya and is compared with allied species including *P. cherrapunjiae*, (Roonwal and Kripalani, 1961), the adults of which are unknown.

INTRODUCTION

Three specimens of frogs were collected from Malki Forest, Shillong (Meghalaya) in the month of February, 1971 from rather strange biotopes (see below). These on closer examination proved to be new and are described below. This locality was re-visited on several occasions but no more examples could be obtained for about 2 years. In January of 1973, five more specimens were collected from the same locality under similar conditions.

DESCRIPTION

Family RANIDAE

Genus *Philautus* Gistel

1848 *Philautus*, J. Von. N. F. X. Gistel, *Naturg. Th ierr.*, Stuttgart, p. 10
Philautus shillongensis sp. nov.

(Figures 1-4 and Table I)

Colour.—Dorsally varying from grey to black; anterior part of head darker than the rest of the body; upper eyelids black with a thin dark band connecting the two; a 'V' shaped broad band of light colour, its base on level with the forelimbs and the two arms directed towards the eye; a light patch behind and above the angle of jaws with a dark narrow band extending from hind margin of eye towards the forelimb; a faint vertebral line. Ventrally pale, rim of mandible and belly slightly greyish.

Head.—Depressed, slightly broader than long; snout rather pointed, a little longer than the maximum diameter of the eye: canthus rostralis fairly distinct; loreal region slightly concave. Nostrils closer to the tip of the snout than to eye. Eyes with horizontal pupil, its length a little shorter than the interorbital distance. Tympanum fairly, distinct. Tongue large, free, bifid behind and without a papilla. Vomerine teeth absent.

Forelimbs.—Thin and fairly long. Fingers short with intercalary ossicle; not webbed; first finger shorter than second; third longest; fourth slightly longer than second; disks round; sub-articular tubercles faintly developed.

Hindlimbs.—Fairly robust; tibio-tarsal articulation reaching the posterior corner of eye; toes with intercalary ossicle, free (a very indistinct rudiment of web present between the fourth and fifth); fourth toe longest; fifth a little shorter than third; second shorter than third; first shortest; disks round; sub-articular tubercles moderately developed; an indistinct inner metatarsal tubercle present; outer metatarsal separated by a groove extending to the tarso-metatarsal articulation on the dorsal side of foot.

Belly with numerous warts, a distinct lateral longitudinal fold running from the axilla to the forepart of the thigh present.

The specimens do not show any external characters for distinguishing the sex. Even assuming that they were bred in the previous Monsoon which is usually the breeding period of Amphibians in this part, these frogs have completed well over 7 months of age and are not young ones.

Measurement : see Table I.

Type-specimens

Holotype.—An adult frog Reg. No. V/ERS 472 in spirit, loc. Malki Forest, Shillong, Altitude 5,000 ft. (1,524 metres), coll. R. Giri, 13 February, 1971.

Paratype.—Two adult frogs with the same data as the holotype; Reg. No. V/ERS 473 and 474; 5 adults, Reg. No. V/ERS 6608, loc. as above, coll. M. S. Jyrwa, 24 January, 1973.

All type specimens will be deposited with the Zoological Survey of India, Calcutta, in due course.

TABLE I
Body measurement in mm of the holotype and 7 paratypes of Philautus shillongensis Pillai and Chanda from Shillong, Meghalaya

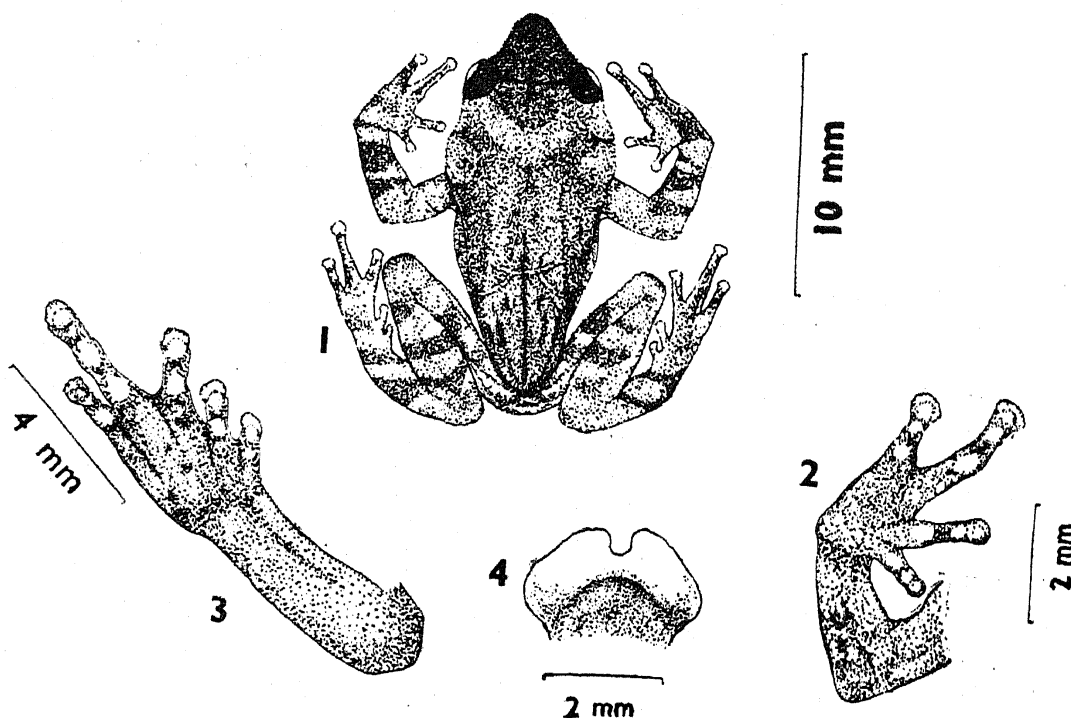
Body parts	Holotype							Paratypes						
	1	2	3	4	5	6	7							
1. Length of head and body (from tip of snout to vent)	17	15	12.5	20	15	13	15	10						
2. Length of head (from tip of snout to angle of jaws)	5.0	4	3.5	5.5	4	3.5	4	3.5						
3. Width of head (at angle of jaw)	5.5	5	4.5	6	4.4	4.3	4.5	4						
4. Length of snout (from tip of snout to anterior corner of eyes)	3	2	2	3	2.2	2	2.2	1.5						
5. Max. length of eye (from anterior to posterior corner)	2	1.5	1.2	2.5	2	2	2.1	2						
6. Interorbital distance	2.5	2.3	1.5	3	2.2	2.2	2.1	2						
7. Distance between anterior edge of nostrils and tip of snout	1.5	1.2	1.0	1.8	1.5	1.4	1.5	1						
8. Diameter of tympanum	1	0.7	0.6	1.3	1	1	1	1						
9. Length of arm (from proximal end of junction of arm with the body to tip of longest finger)	11	8	7	10.5	9.8	8.5	10	7.2						

Acad.—B4

10. Length of hand (from base of palm to tip of longest finger)	4	3	2.8	5	3.5	3.2	3.5	2.5
11. Length of 1st finger	1.5	1	1	1.6	1.3	1.2	1.2	0.8
12. Length of 2nd finger	2.3	1.8	1.2	2.5	2.2	2.2	2.2	1
13. Length of 3rd finger	2.5	2.3	2	3	2.5	2.2	2.5	2
14. Length of 4th finger	2.1	1.5	1	2.5	1.5	1.5	1.5	1.2
15. Length of leg (from mid-ventral line of attachment of leg with body to tip of longest toe)	29	22	20	29	21	21	21.5	18.5
16. Length of tibia (from knee to tibio-tarsal joint)	8.5	7	6	8.7	6.5	6.5	6.5	5
17. Length of foot (from base of foot to tip of longest toe)	6.5	5	4	6.5	5	5	5	3.5
18. Length of 1st toe	1.1	1	1	1.8	1	1	1	0.5
19. Length of 2nd toe	1.1	1.1	1	2	1.2	1.2	1.2	1
20. Length of 3rd toe	2.5	2	1.5	2.3	2.2	2.1	2.3	1.5
21. Length of 4th toe	3.2	2.5	2	3.5	3	2.9	3.1	2.2
22. Length of 5th toe	2.3	1.5	1	2.3	2	2	2.1	1.6

Type-locality and habitat

Malki Forest is an uninhabited strip of hilly pine forest about 3 km east of Risa Colony where the Eastern Regional Station of the Zoological Survey of India is housed. The hill slope was cut vertically for the construction of a cutcha forest road and the cut surface presented a parched appearance. The frogs were collected from fissures more than a metre high in caked earth, three or four huddled together. They were in a torpid state, their colour harmonising perfectly with the slightly moist earth of the hide-out which when uncovered one or two jumped out and lay on the back unable even to revert to its normal posture. The months of January and February are very cold in Shillong and it is highly probable that these frogs were hibernating in this unusual habitat. Lower down about a hundred metres away there flowed a hill stream over a bottom of boulders, pebbles and gravel. This being the only water body in the neighbourhood, one could well imagine that these frogs, born in the stream and inhabiting its vicinity, crawled up to this niche for wintering.



FIGS. 1-4. *Philautus shillongensis* Pillai & Chanda. Fig. 1. Frog, in dorsal view. Fig. 2. Hand, in ventral view. Fig. 3. Foot, in ventral view. Fig. 4. Tongue, in dorsal view.

DISCUSSION

Philautus shillongensis differs from all other species of the genus in the absence of webs on toes. The web that is present in various degrees of development in the genus has been reduced to a very indistinct rudiment retained between fourth and fifth toes. With reference to this character the present species comes closest to *P. anadon* (Van Kampen, 1907) and *P. cornutus* (Boul., 1920) described from Sumatra (Van Kampen, 1923), *P. hypomelas* (Gunther, 1876) described from Ceylon and *P. glandulosus* (Jerdon, 1853) described from high altitudes of Nilgiri and Anamalai Hills, S. India (Boulenger, 1890). Webbing in *P. anadon* is much more pronounced (one half of the first phalanx) and is clearly discernible between all toes except the first two (Figure on page 271, V. Kampen, *loc. cit.*). Moreover, the transversely truncate snout, the larger disks on fingers, the shortness of the second finger on comparison with the fourth, the heel reaching beyond the tip of snout, the length of tibia (two-thirds of the length of head and body *vis-a-vis* half or less in *P. shillongensis*) and the distinctive colouration in *P. anadon* leave no doubt about the specific identity of *P. shillongensis*. It differs from *P. cornutus* in many characters, chief of them being the much smaller disks (disks are larger than tympanum in *P. cornutus*), comparative length of the hindlimb as a whole and tibia in particular, lack of the conspicuous and characteristic glandular ridges on the dorsal side and presence of the lateral longitudinal fold. From *P. hypomelas* it differs in possessing a fairly distinct tympanum, tibio-tarsal articulation not reaching to tip of snout or beyond and in colouration. The webbing is restricted to the bases of toes in *P. glandulosus* also but the presence of a pointed papilla in the anterior part of the tongue and the hidden tympanum alone are sufficient to distinguish it from the present species.

Philautus cherrapunjiae (Roonwal and Kripalani, 1961) has been described from near Cherrapunji which is about 50 km from Shillong. The adult of this species which was erected on the basis of young, recently metamorphosed frogs, is still unknown. We have in our collections a young frog of *Philautus cherrapunjiae* (Fig. 5) collected from a grassy field and a few tadpoles of the same species from an adjoining stagnant body of water near Mawblang village, about 5 km south-east of Cherrapunji town. The frog measured 16.4 mm in head and body and is larger and more advanced than the largest example known so far for the species (12.4 mm). The differences between this and *Philautus shillongensis* are so well marked that there is hardly any ground for imagining the latter to be the adult of the former. Moreover one of our paratypes measures only 10 mm which is smaller than all the

examples which Roonwal and Kripalani had at their disposal. The fully webbed feet, the broader head, the larger and more laterally placed eyes and the more forwardly placed nostrils in *Philautus cherrapunjiae* would easily distinguish it from *P. shillongensis*. Moreover the distinct colour pattern of the latter, is quite unmistakable compared to the gray-coloured body and absence of markings of the former.

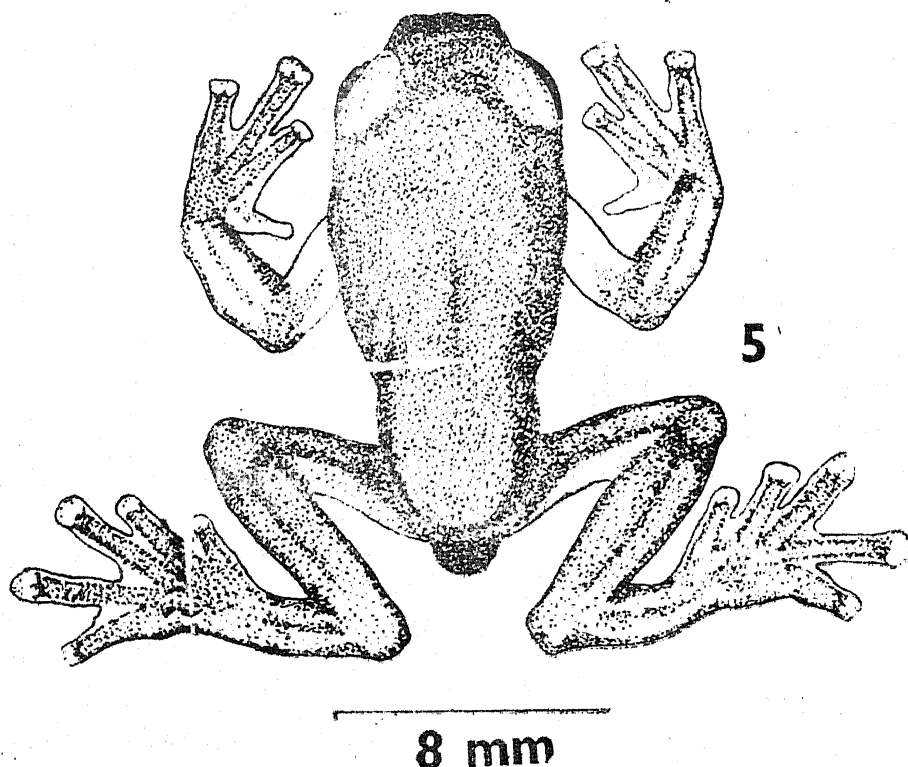


FIG. 5. *Philautus cherrapunjiae* Roonwal & Kripalani, in dorsal view.

ACKNOWLEDGEMENT

The authors are thankful to Dr. A. P. Kapur, Director, Zoological Survey of India, Calcutta for providing the opportunity to undertake this work.

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